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Notes on Lepidoptera.

1882 ?

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Samphila Quadraquina, Scud.

Scud. Proc. Bost. Soc. Nat. Hist. Vol. 11, p. 381, 1868.

Original Description.

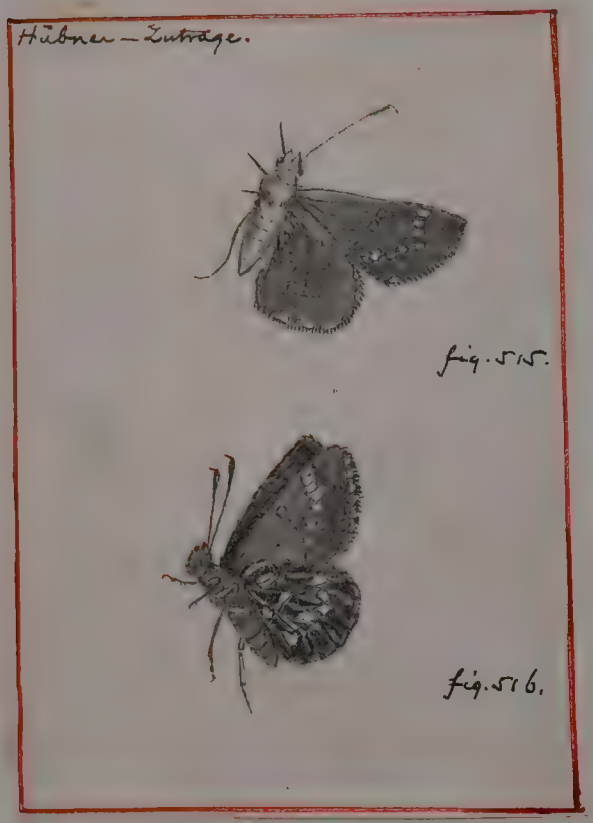
"Wings above dark mulberry-brown; primaries maculated with white (the spots arranged as in Pocahontas), and sometimes slightly suffused, especially about the centre, with hoary scales; secondaries sometimes much suffused in the centre with fulvous. Beneath, the secondaries differ from Pocahontas in having a much narrower transverse band, situated further from the base of the wing; the ~~outh~~ outer border of the bands in the two species corresponds in position and direction."

Habitat.

West Roxbury, Mass. (June 11th.); Quincy, Mass.; Guilford & New Haven, Conn. (11/6/1882)

Pyrgus Textor, Hüb.—

Hüb., Exot. Schmett., Zutrage, figs. 515, 516, 1825.



After Hübner, by S.F. Aaron.

(Description made from figs. in Zutrage, by S.F. Aaron.)—

Wings above fuscous, all spots and marginal alternations yellow, except a cloud on center of secondaries, which is dull brown and somewhat obsolete. Wings lighter at base. Under side paler, somewhat olivaceous; secondaries deeper, slightly purplish-brown. All spots yellow and veins in secondaries same. Margins of secondaries with reddish punctations or points along the fringe; otherwise yellow. Eight or nine spots on Primaries in a band and two at end of cell, as above.

Pamphila Icanotus, Scud.

Scud. Proc. Bost. Soc. Nat. Hist. Vol. 11, p. 381, 1868.

Original Description.

"♀. Wings above blackish-brown, secondaries more or less suffused in the centre with very pale fulvous; primaries with scattered fulvous scales, especially at the base and along the costal area; fringes at its base blackish-brown, apical two-thirds whitish, pearly white on the inner border of secondaries, obscured with a brownish tint on the upper half of the outer border of primaries; primaries with four pale fulvous spots; two small inconspicuous dashes, one above the other, between the terminal devarication of the sub-costal nervure and two larger subquadrate spots, lunated outwardly, the lower and larger situated between the first and second median nervules, its inner border nearly on a line with the outer border of the larger.

Beneath light yellowish-brown; darker on the costal border of primaries, the inner and costal border of the secondaries narrowly and faintly, the inner border of the primaries broadly and deeply fuliginated; the veins of both wings, but especially of the secondaries, whitish; the larger

11.

spots of the primaries reproduced beneath. Exp. "Length of wings 1.4 inch."

Habitat. Lexington, Mass.; Aug., meadows. (11/6/1882.)

Eudamus Pylades, Scudd.—

Proc. Boer. Soc. Nat. Hist. 13, 207.— Jan. 1870.

"Mr. Scudder also stated that the butterfly described by Dr. Harris in his State Report as Eudamus Bathyllus — a name invariably accepted by subsequent writers — was not the species originally described and figured by Abbat & Smith under the same specific name; he therefore proposed to call Harris' Species — Eudamus Pylades."—

Pamphila Hianna, Scud.

Scud. Proc. Bost. Soc. Nat. Hist. Vol. 11, p. 382.

Original Description.

"Wings above dark lustrous-brown, darker at the base; fringe pale yellowish-brown, at the extreme base blackish-brown. Primaries with a row of three small, white, oval spots, increasing in size toward the costa, situated one between each of the terminal subcostal nervules near their divarication; a small circular (♂), or large squarish (♀), spot between the terminal median nervules, near their divarication; two small oval spots — one, or both, sometimes obsolete — one above the other near the extremity of the cell; in addition the ♀ has a large transversely subquadrate spot between the first and second median nervules, half-way between the divarication of the second and third nervules, and the spot in their interspace; in continuation of the line connecting the median spots are two minute roundish or transversely oval obsolescent spots above, and a small roundish spot below; in the place of these the ♂ has the sexual bar, which is indistinct, black, interrupted; it starts from the median nervure, just within, or at its last

divarication, and passes in a straight, or very slightly incurved line, directed sharply inward to the first median nervule, so as to form with the latter an angle of about 45°; continuing from a point as far outside of this as its own width, it crosses the interspace between the median nervules, making a slight outward curve nearly parallel to the outer margin.

Beneath dull chestnut-brown, the whole apex of both wings covered with a bloom of pearly white scales, lower outer angle of primaries dull brownish-white, the spots of the upper surface of the primaries are repeated beneath, but whiter; between the subcostal and median spots is a large quadrate spot, parallel to the costal border, of a dull brownish tint, twice as long as broad. The secondaries have a distinct circular spot of pearly white, narrowly annulated with black, situated at the base, between the first branches of the subcostal nervure; an indistinct medial band; often obsolete, of the same color as the apex of the wing.

Expanse of wings 1.4 inch.

This species is closely allied to Punctella,

Comparison. Grote and Robinson; it differs from it in the three subapical spots which increase in size towards the costa, and have no pale spots surrounding them on the under surface; in possessing a large pale spot on the under surface of the primaries beyond the cell, and a white dot ~~on the~~ at the base of the under surface of the secondaries; possibly the black dash of the ♂ also differs in the two species."

Habitat. Quincy and Dorchester, Mass. (11/6/1882)

Pamphila Draco Edwards.

Trans. Am. Ent. Soc. 3. 274.

Male.— Upper side fulvous on costal margin and disk, fuscous, suffused with fulvous on hind margins; primaries have a yellowish sub-apical spot on costa, two small spots against cell near hind margin and a large one at end of and below cell; stigma narrow, double curved, velvet black at the ends and behind it a large rounded fuscous patch. Under side of primaries blackish at base and on inner margin, fulvous on disk and costal margin and greyish fulvous at apex and on hind margin, spots as above; secondaries grey-fulvous, marked by a yellowish band of irregular connected spots which commences on middle of costa, bends at a right angle below apex and near the margin, and two-thirds the distance across the wings turns up the disk and runs through cell to base. Body above black covered with greenish hairs; beneath greenish-yellow; palpi same; antennæ brown, annulated with black above, yellow below; club black above, yellow below, tip fulvous.

Female.— Expanse.— 1 3/4 inch. Upper side similar to ♂; the spots larger and spots of underside reproduced above. Under-side of primaries, fulvous on disk and in-

(see p. 12.)

Carterocephalus Mesapano, Scudd.

Hesperia Mesapano, Scud. Proc. Bost. Soc. Nat. Hist. XI, p. 383, 1st mo. 1868.

Original Description.

"Resembles H. Mandan, Edw. Wings above dark purplish-brown, variegated with dull orange spots; fringe dusky, blackish towards base.

Primaries with a large irregular spot in the cell; it consists, first, of a square spot which occupies the whole width of the cell, and has its outer limit at the second devarication of the median nervule; starting from a little beyond the lower inner angle of the square spot, where it is divided by the median nervure, it does not reach the subcostal nervure, and is obliquely truncated or rounded; there is a subapical row of spots; the three subcostal ones are wedge-shaped, their apices pointing inwards; the two between the subcostal and median nervures are smaller than the rest, sublunate, and situated so much further outwards that their inner border runs parallel to the outer border of the other spots; of the spots below these, the first is triangular, the second is largest of all and subquadrate, the third and fourth are unequal and oppositely rhomboidal; midway between these and the base of the wing

is a small roundish spot.

Secondaries with two spots between the subcostal and median nervures, dividing equally, the distance from the base to the tip of the wing, the inner ovate, and scarcely half as large as the outer roundish one; a third small ovate spot at the first divarication of the median nervure, and, sometimes, a fourth small ovate spot between the terminal devarications of the subcostal; sometimes a submarginal row of spots.

Beneath dull fulvous, the primaries with brownish spots, the secondaries with very large silvery-white spots, encircled with yellowish-brown; the darker parts of the primaries are as follows: the basal half of the wing, beneath the median nervures, [redacted], fuscous; the basal two-thirds of the costal area obscured with fuscous; a dark spot occupying the upper half of the middle of the cell; a large oblong quadrate spot, between the ~~first and~~ subcostal and median nervures, extending from just within the tip of the cell (where it incloses a yellow spot) more than halfway to the outer margin; above its basal third a slight infuscation; a quadrate spot between the first and and second median nervules, its outer border reaching the second

median nervule; a submarginal row of spots first without the row of yellow spots on the upper surface, those between the subcostal and median nervures sagittate.

The spots on the secondaries (beneath) are as follows: a very large oblong-oval one in the middle of the interspace between the subcostal nervure and its first nervule, two spots dividing Equally the interspace between the subcostal and median nervures, the inner oblong-oval, as large as the first mentioned, the outer the largest on the wing, and subquadrate; the latter forms one of a straight discal row of spots subparallel to the outer border, the others being as follows: a spot similar to the first mentioned situated between the median and submedian nervures; a small roundish or ovate spot between the latter and the largest spot; and beyond the largest a roundish or subtriangular spot, half as large as the first mentioned spot, situated near the outer angle; above this, at right angles to the extremity of the straight row a small roundish spot; a submarginal row of five small roundish spots, those between the subcostal and median nervures small and

marginal, sometimes obsolete.

Expanse. Expanse of wings one inch."

Habitat. Taken at Norway, Me, June 13th.

From page 8. — Pamphila Draco, Edw.

" —

nei margin; the costal and submarginal spots large, clear white; discal spots yellow diffused. Secondaries greenish with clear white spots, not connected as in ♂, but disposed in the same way, there being a triangular spot on origin of subcostal and a large spot in cell and six along the margin.

Habitat. — Colorado. — T. L. Mead. —

This species resembles Napa and Lucas and also Metea, but may at once be distinguished from either by the black patch behind stigma.

Annals of the Entomological Society of [illegible].

Vol. II: p. 310.

Lepidoptera of [illegible].

66. Thanaos tristis.

There is no sinus of the transversis.

Fusco-fuscus; the superiors with a central spot and a row of six similar spots, transverse, whitish; the inferiors with a white border.

It has the shape and size of juvenalis. Wings crown, with the border of the inferiors white. The superiors with a few darker undulations, as in allied species, and presenting on the middle a small white spot, followed by a curved line of six similar points separated into two groups, the one of four, near the edge, the other of two, below the median nervure. The under side paler than the upper. In this species, as in juvenalis, the small points are placed on the inner [illegible] curved [illegible].

[illegible]

Size, size and almost the general appearance of Carthami on the upper side, except that the wings are a little blacker, and that there are two white spots between the [illegible] band & the [illegible]; the [illegible] bands of the secondaries are more [illegible] divided than in Carthami, & not [illegible] the [illegible] is very apparent from that, one can [illegible] and the white are more or less blended, while the middle and the extremity present a kind of [illegible] and the [illegible] the same [illegible] and in Pisa.

6. Eurydice capitata.

A little larger than the preceding, which it closely resembles. ~~The under side of the superior~~ ~~present from that of the~~ European species ~~and is also~~ ~~distinguished~~. The ~~of~~ of the wings a little darker; two small ~~spots~~ instead of a single one, between the base and ~~erse~~ band of the primaries; the secondaries ~~the~~ the middle a small macular band instead ~~spot~~ as in Alveolus. The under side of the ~~with~~ the median band narrower, more ~~con~~; no white spots at the base.

It is found in spring with S. rurales, ~~fre~~ on plants.

No. 1. Superior.

Separated by an oval space on the flanks; that is to say, the interval of color spotted with white between the band and the fawn-colored band of the superior, as in the preceding species. The under side of the inferiors whitish, with the white spots less decided, but distinct.

We have seen but a single individual of this species.

H. S. Ericotrum.

The male of this species is so different, at the first glance, from that of the preceding; the female, on the contrary, resembles the corresponding sex in the shape and in the color of the upper wings, though, I think, [illegible] The upper side the wings of the male are [illegible] tinged with sulphur, [illegible], have no other markings than a terminal festooned [illegible], forming a row of small sagittate spots, [illegible] a black line at the base of the fringe; at the [illegible] the superiors the small spots referred to form two or three rows. The under side of the wings [illegible]; that of the inferiors with two brownish bands, [illegible] the base, and the other at the extremity. The upper side of the female blackish (fuscous?) with two white transverse bands, common to both wings; the first on the middle, broad, sinuous, irregular; the second much narrower, [illegible] of small sagittate spots, except that which is on the margin of the superiors, which is quadrangular, cut by the nervures and re-entrant on the inner side. The [illegible] the reflection of the markings of the opposite surface.

It is found here and there in uncultivated [illegible]. I believe that it has also been found in Mexico.

Erycides Urania, West.=Hew.—

West.=Hew., Gen. Di. Lep. p. 510, pl. 79. fig. 1.

Text. — "Er. Urania, Westw. (Erycides U.) Doubl. Westw. & Hewits. Gen. Di. Lep. pl. 79. fig. 1.
Mexico.— B.(ritish) M.(useum)"

———"———

(Description by E. M. A. from fig. in pl. 79.)

Expands 2½ inches. — Ground color black. Primaries with five or six green dashes from base to near middle of wing. Six or seven rounded spots of same color just back and parallel to outer margin. Four ~~or five~~ squarish sub-apical translucent whitish spots, and two bands of same color across median area; the outer the smaller and cut into two by the nervures, the inner extending two-thirds across the wing and divided into three. Secondaries with basal dashes and spots placed much as in primaries, much more distinct and of brighter color; the dash nearest the abdominal margin and the last three or four spots nearest the anal angle blue, tipped above with whitish blue. Anal spot blue, cut into three or four fine lines by dashes of the ground color. Emarginations and marks on head white. Thorax and abdomen dull black-brown

74. Hesperia sylvanoides.

Size and shape of our Sylvanus. The upper side of the male is nearly as in that species, except that ~~between~~ within the discal bar or elbowed spot, there is a [illegible] of a fulvous color to be a [illegible] of it. The three or four spots a little paler than the ground color, and not so [illegible] at the extremity near the border, as [illegible] in the present species: the border is also of a deeper color. The upper side of the female has on the disk a black triangular spot, [illegible] by a small white transparent spot; the [illegible] marked by three yellow points. The inferiors somewhat sinuate, with the border quite deeply colored, and the base broadly fuscous. The under side of the wings pale yellow sometimes inclined to gray on the inferiors, and not of a bright yellow, ~~brightly~~ tinged, with [illegible]. The discal or fascial spots present nearly the same arrangement.

Quite common in May.

~~75. Hesperia nemorus.~~

~~The upper side of the male as in Sylvanoides, the~~ border

75. [illegible]

The upper side of the [illegible], it [illegible] a little broader, the discal bar of the superior [illegible] a little broader, prolonged a [illegible] the [illegible]. The lower side of the [illegible] as in Actaeon; that of the superior internal spots; that of the inferiors paler in the [illegible] with the [illegible] of the discal bar. We have not [illegible] found.

76. "Lespeyres"

Shape of wings, &c. &c. Size. The ground colour of the upper surface is yellow in both sexes. That of the superiors has the discal bar prolonged to the costa by a blackish streak and a transverse row of yellow spots between the border and the discal bar. That of the inferiors with the black border quite broad and the base more or less suffused. The under side of the primaries yellow, with the discal bar less decided than on the upper side; the secondaries yellow, with a sort of transverse band nearly median, of a paler tinge. I do not know the female.

[illegible]

[illegible] a few triangular blackish streaks on the nervures; that of the superiors with the discal bar, as in Sylvanus, usually extended [illegible] obliterated. The lower side of a nearly uniform yellow; that of the superiors having toward the summit, on the "[illegible]rgin, a small, ~~spot~~ rather indistinct spot, a little paler [illegible] the upper side; that of the inferiors destitute of spots.

The female larger, with a blackish, serrate border; the "[illegible]" upper side of the superiors having an oblique, blackish stripe, corresponding to the discal bar of the male, surmounted toward the summit by a spot of the same color. The under side of the primaries nearly as in the male; that of the secondaries bearing a transverse, irregular [illegible] of spots, a little paler than the ground color.

[illegible]

78. Hesperia rurícola.

Size and shape of lineola; the wings a little sinuate, nearly of the same yellow, with a narrow, [illegible] ded., brown border; the superiors having the dis[illegible] var as decided as in Sylvanus, marked [illegible] by a narrow, reddish line. The under side of [illegible] yellow, with the entire surface of the inferiors and the summit of the superiors a little more tinged with green than in Sylvanus. The [illegible]

Among wet flowers on the banks of [illegible]

79. Hesperia campestris.

This species is distinguished, at the first glance, from all the Californian species, by the [illegible] black spot which joins the disc [illegible]. Shape and size of the preceding species. Wings of the same yellow, with a somewhat broad brown border, and the fringe of a pale yellow. The superiors of the male are marked at the summit, on the end of the border, by two or three points of the ground color. The inferiors [illegible] the disk more or less washed with black in the middle. The lower side of the wings of a rather pale yellow, nearly uniform; that of the superiors [illegible] summit by three small paler spots; that of the inferiors with a transverse line of similar small spots, hardly distinguished from the general color. [illegible] two small ones.

Hovers in June in dry places.

80. Hesperia Sabuleti.

Shape and size of Eurynome; the apex, that is the [illegible] Wings nearly [illegible] a somewhat broad [illegible] ors; the latter have the discal bar shorter a truncated than in Sylvanus, joined to a grayish [illegible] the under side of a somewhat [illegible] slightly sagittate brown spots; that of the superi[illegible] ing near the base a row of similar spots. The [illegible] conspicuously larger. The upper side of the wings a [illegible] paler; that of the superiors bearing, between the [illegible] and the disk, a row of spots of a paler yellow than [illegible] ground color.

As is seen by the description, this Hesperia is [illegible] near Eurynome, perhaps indeed it is but a local [illegible] that species.

[illegible]

I have seen one specimen of this species, which appears that it belongs to the genus [illegible] as understand it today. It is very probable, however, that it forms a part of the genus Colias, which comprises a considerable number of exotic species. The latter, at least, may be considered as types of this genus.

The species under consideration has the shape and size of the female Nostradamus. The upper side of the wings of a slightly reddish brown; that of the superior having four transparent white spots, two of which, very small and point-like, are near the margin; the other two, being larger, are in the ramifications of the median nervure; the upper side of the inferiors has no spots. The lower side is of a duller, paler hue, a little more inclined to gray, with the same spots as above.

It inhabits dry places.

Closing remark. As for the Hesperidae, we have not given a "diagnostic phrase" because we have believed that this would be unnecessary and that they would be readily recognized after the minute comparison which we have made between these and perfectly known species.

(By "diagnostic phrase" he evidently means the brief Latin description which he inserts at the head of his notices of species in other families. He does however give such in Thanaos/rustics

27a.—

Amblyscirtes Eos, Edw.

—Wm: H. Edwards, Trans: Am: Ent: Soc: 3,276.—

Original Description

♂— Expands 1 inch.—

Upper side grey-brown; primaries have three white points on costal margin in a line at right angles to Edge; otherwise immaculate; fringes alternate white and fuscous on primaries, white on secondaries, with fuscous only on tips of the third or fourth nervules in middle of margin.

Under side brown with a whitish or cretaceous tint at apex of primaries and along hind margin and over most of secondaries, quite dense on hind margin; the points on primaries repeated, a little enlarged and accompanied by ~~the~~ a fourth below the others and towards hind margin; secondaries have a mesial row of whitish points, not reaching either margin, irregular, rather forming a double row, a similar point in cell and two in the interspace above cell.

Habitat.

Hab: Dallas, Texas. Boll, Collector.

Melitaea Hoffmanni.

Behr, Proc: Cal: Acad: Nat: Sci: 3, 88. —

Translation by C. E. A.

Wings of the ♂ + ♀ black from the base to the middle, ~~of the~~ here and there beset with yellow and fulvous spots; above the middle the wings are yellow, fulvescent toward the margin, more or less spotted with black.

Inferiors beneath as in M: Palla, but the submarginal fascia between the black undulating lines is formed not of lunules but of entirely round points (spots?). —

Melitaea Palla, Boisd.-

Behr, Proc: Cal: Acad: Nat: Sci: 3, 89. —

Translated by C.E.A. —

Original

Translation.

Wings of the ♂ above fulvous spotted with black, of the ♀ black, crossed by a few macular bands.

Posteriors beneath , crossed by black lines and rows of golden-yellow spots; sometimes with a series of fulvous lunules of the submarginal band beginning at the third nervure and running down to the last one. Each lunule contains an ocellus. —

Original

Translation.

I repeat the diagnosis for the purpose of adding a character that has been hitherto overlooked but is essential for seperating this species from the following. — (Whitneii) —

It is the eyespot contained in each of the orange colored spots of the submarginal band. It is true that these spots are not in every specimen equally visible, and often require the help of the glass to make them visible, but still they are never wanting as in the following species. M: Palla is the only one of this type found in the vicinity of San Francisco, where it is rather common.

Nevertheless I have not yet succeeded in finding the caterpillar, but have heard from our celebrated Entomologist, M. Lesquin, that he has raised this butterfly from a caterpillar found on a species of Plantago. —

Nisoniades Martialis, Scudd. —

Trans: Chicago Acad: Sci: Vol: 1, 335, 1869 — (October).

This butterfly is most nearly related to N. Persius, Scudd., and agrees with it in size; it differs from it in the greater distinctness and definition of the darker markings upon the upper surface of the wings; in the distinctness with which the markings of the under surface of the secondaries can be seen upon the upper surface; in the sagittate character of the submarginal row of spots upon the under surface of the secondaries; and in the usually brighter color of the tip of the antennæ.

The specimens were taken on the open prairies and were most abundant in the latter part of July.

9 ♂, New Jefferson [Iowa], July 21st. — 24th. 1 ♂, lower half of Dallas County in early half of August (worn).

Melitaea Whitneyi, Behr.

Behr, Proc: Cal: Acad: Nat: Sci: 3, 88.—

Wings of ♂ above fuscous red spotted with black, of the ♀ almost the same only alternating here and there with a color more dilute.

Posteriors beneath similar to those of M: Palla, but the lunules of the submarginal fascia entirely destitute of ocelli.

At the first look the difference between this species and M: Palla is striking enough, for the coloration of the upper side is quite different, and the reticulate black markings run in much thinner lines and is more regular than in M: Palla, where towards the margin the black markings unite more or less and cover the ground color. The striking alteration in the colors of the upper side in the ♀ of M: Palla, does not exist here and the ♀ is sometimes quite like the ♂.

Sometimes the ground-color alternates transversely with a slightly diluted tint; and for the ♀ this character would be

sufficient, but both sexes differ in the absence of the eye-spots of the submarginal band.

Hab:- Tuolomne River, California.

Melitæa Cooperi, Behr.-

Proc: Cal: Acad: Nat: Sci: 3, 90.-

Wings above as Mel: Chalcedon, the inferiors beneath sulphureus, with fuscous bands & spots in rows, the spots of the submarginal band of a uniform fuscous color, not surrounded by any halo.

—"—

This species is very similar to Chalcedon, but the want of the yellowish halo around the lunulæ of the brown band on the under side, is a very positive diagnostic character. The brown color of the band also is always of the same sombre hue as that of the under side of the fore-wings, and never of the grey-brick-red that color of this fascia on the under side of M: Chalcedon, forming a perceptable contrast to the somber coloring of the under side of the fore wings, which is the same in M: Chalcedon and M: Cooperi. With all these well defined diff. the two species look so much alike, that it would have been a long time before M: Cooperi would have been recognized

as a distinct species, if it had not
been for the striking diff: of its cater=
pillar, which was discovered by Mr.
Lorquin near Clear Lake on a species
of Scrophularia.

Hesperia Horns, Edw.-

—Trans: Am: Ent: Soc: 3, 277.—

♀— Expands 1.5 inches.—

Upper side brown, darkest next base of wings, light colored on disks; immaculate, fringes long, con=colored.

Under side brown; primaries have 2 or 3 (white?) dots on costal margin near apex and a few whitish scales indicating obsolete spots in the upper and middle median interspaces.

Body above con=colored, beneath grayish; palpi brownish=gray; antennae brown above, luteous below; club black.

From Dallas, Texas. Taken by Mr. Boll, and in the coll: of Mus: Comp: Anat: at Cambridge, Mass.—

Pamphila Attalus, Edw.-

—Trans: Am: Ent: Soc: 3, 276.—

♀ — Expanse 1.4 inch.—

Upper side fuscous, somewhat suffused with fulvous, especially noticeable when seen obliquely; primaries have three small yellow-white sub-apical spots on costa, a large subquadrate spot at extremity of cell, a triangular one at origin of lower branch of median, a large subquadrate one below the last, and a patch on sub-median interspace.

Secondaries have a row of indistinct yellow points and small spots, bent at a right angle so as to be nearly parallel to the costal and hind margin, terminating at median nervure; a similar point at extremity of cell; fringes cinereous.

Under side secondaries and the costal & apical half of primaries uniform yellow-ochraceous; the rest of

primaries fuscous, spots of the upper side repeated, with the addition of two points near hind margin opposite the cell; secondaries have four distinct spots of Equal size, one in cell, one in in upper discoidal interspace and two contiguous to Each other opposite cell.

Body above fuscous, & covered with greenish hairs, beneath gray-yellow, legs and palpi same; antennæ fuscous above; lutens below; club black, tip fulvous.

Four ♀♀ taken by G. W. Belfrage, near Waco, Texas.

This species differs decidedly from any other known to me in the color and markings of the under side. I submitted it to Mr. A. G. Butler of the British Museum, who writes:- "This is a new and undescribed species, curiously like the Australian Trapezites Petalea, Hewitson, in color and markings."

Pamphila Licinus, Edw.-

—Trans: Am: Ent: Soc: 3, 275.—

♂— Expanse 1.35 inches.—

Upper side fuscous, a large fulvous patch on disk of primaries, within which is the stigma, a long, narrow, slightly curved, fuscous bar, velvet black at the extremities; three sub-apical points on costa, two others opposite cell near hind margin and a small fulvous spot against the end of stigma, nearly connected with the discal patch.-

Secondaries have a long sub-triangular fulvous patch on the disk, obscured by fuscous, paler towards hind margin; fringes cinereous.

Under side brown washed with fulvous on costal margin of primaries especially next base, and somewhat cinereous in disk of secondaries; the spots on costal and hind margins repeated, white; two spots, smaller, at extremity of cell,

the one near stigma reflected, and two larger spots of yellow-white below this and reaching inner margin.

Secondaries have a row of small white spots connected so as to form a continuous line bent at right angles, terminating posteriorly at median nervure; two dots in cell.

Body, above, black, covered with fulvous hair; beneath gray-brown; legs same; palpi luteous; antennæ brown above, luteous below; club black, tip fulvous.

Taken by G. W. Belfrage, near Waco, Texas.

This species belongs to the group of Uncas and Metea.

Hesperia Iowa, Scudd.—
(Continued from opposite page.)—

It was first seen early in July.

13 ♂, 3 ♀ were taken at Denison (Iowa), about the middle of July. 3 ♀, near ~~the~~ New Jefferson (Iowa) July 24th.—

Hesperia Iowa, Scudd.—

Trans: Chicago Acad: Sci: Vol: 1, 336, Oct. 1869.—

♂.— Primaries above light brownish buff, shaded into safron toward the costal margin; costal edge blackish; inner margin narrowly, outer margin (especially below) broadly bordered with dull brown; the base with a few brownish scales; fringe pale brown. Secondaries light brownish buff in the middle, bordered broadly on every margin with brown; fringe dirty white; beneath a little duller than above — nearly uniform; ~~primaries~~ secondaries a little deeper in color; inner border of primaries smokey.

♀ — Like the ♂, with the following exceptions; the border is broader, the yellow color duller and more or less obscured especially in the secondaries; the veins crossing it [illegible] and, on the primaries, a narrow line of brownish scales follows the middle of the cell, terminated at its extremity by a short, obscure oblique line.

Expanse of wings, ♂, 1.1 — 1.2 inches; ♀, 1.4 inches.

This species differs from H. Delaware, Edw., in the diminished brilliancy of the wings, in the broadness of the marginal bands, and in the peculiar markings of the ♀, which is probably the Var. A of Mr. Edward's description of H. Delaware.

This is one of the most abundant Hesperians seen in Iowa; it occurred almost exclusively on flowers of Echinacea Angustifolia, D.C., which grew in knolls on the open prairie.

see opposite page.

Lepidoptera of California.

Part I.

Rhopalocera.

— · —

1. Papilio Rutulus, Boisd.

Wings dentate, yellow with black margin; anteriors with 4 black bands; posteriors with a single band, the lunule and anal incisure fulvous.

It has in all respects the shape and size of Turnus, of which it is perhaps only a local form. It is quite common in Spring and Summer.

2. P. Eurymedon, Boisd.

Wings dentate, black; anteriors with 3 yellowish white bands and marginal spots; posteriors with two yellowish white broad bands and marginal lunules; the anal & angle and two lunules fulvous.

This handsome butterfly has the shape and size of Turnus.

3. P. Zolicaon, Boisd.

Wings dentate, yellow with black margin; posteriors caudate, with blue spots arranged in a row, and with the anal ocellus ferruginous and pupilled with black.

It is very near our Machaon but is readily distinguished from it by its anal ocellus pupilled as in Asiatics. It appears at the same seasons as Machaon.

4. P. Philenor, Boisd.

It lives, as in the U. S., on Aristolochia Serpentaria, in Spring and Summer.

5. Parnassius Nomion. Fisch. Bull. de la Russ. T. 6. A specimen taken in the mountains does not differ perceptibly from those of eastern Siberia, except that it is a little blacker.

6. P. Smintheus, Doubled. & Hewits. Gen. Diurn. T. p. T. 4. f. 4.

Mountains of the North. It is scarcely as large as Pieris Brassicae.

7. P. Clarius, Eversm. Bull. de Moscou, XXI. p. 539, f. 1, a. b. c.

Wings entire, white; posteriors with minute ocelli, and with red spots beyond the base; ~~posteriors caudate, with blue spots arranged in a row, and with the anal ocellus ferruginous and pupilled with black.~~ anteriors with black spots; female with

a prolonged sac

Larger than our Phoebus, and of the same shape. Mts. of Cala. in July.

Pieridae.

8. Pieris Sisymbrii, Boisd.

Somewhat nearly related to Napi; anteriors above white, with a median spot, an interrupted streak, and apical streaks blackish fuscous; posteriors white, and immaculate above; beneath broadly veined with fuscous.

This Pierid is rare, and forms a transition to the species of the Daplidice group.

9. Pieris Leucodice, Eversm. Bull. de Moscou, XVI.

A specimen taken in the mountains does not appear to us to differ from specimens from Altai.

10. Pieris Protodice, Spec. p. 543, 152.

As common in Sacramento as in other parts of N. Am.

11. Anthocharis Sara, Boisd.

Wings white; anteriors black at the apex, with a larg: triangular reddish-yellow spot; posteriors

above with obsolete fuscous apical streaks; beneath sprinkled with greenish fuscous.

This charming species has the shape of our Cardamines. It is not rare in Spring in fields around San Francisco.

12. Anthocharis lanceolata, Boisd.

Wings elongated, white; anteriors falcate at the apex, with a subcostal spot and the exterior margin fuscous; anteriors beneath white with a fuscous spot and with the apex ashy green; posteriors beneath reticulated and marbled with greenish fuscous, with a distinct white costal streak.

Inhabits the mts. of Juba. Very rare. Aresnides is also found here, which is scarcely distinct from our Ausonia.

13. Rhodocera Rhamni, L.

Similar to that of Europe, with the angles a little more acute. Has it certainly been taken in Cala?

14. Colias Eurytheme, Boisd.

Very near Chrysotheme of Europe of which it is perhaps only a local modification of a little larger size, brighter orange-fulvous, with the yellow margins less numerous. The spots which divide the border of the

inferiors in the ♀ are less exact and less decided than in Chrysotheme.

Common throughout Cala. It also inhabits Mexico.

15. Colias Amphidusa, Boisd

It has in all respects the shape and appearance of our Edusa, but it does not belong to the same division, since the ♂ is destitute of the glandular space on the external border of the secondaries. The ♀ which we have seen are sulphur-white and resemble our variety Helice.

Common in the North of Cala. — Notwithstanding the opinion of M. Lorquin to the contrary, we would not be loth to believe that this species is only a local variety of the preceding.

Lycaenidae.

16. Thecla Melinus. Hübn. Zut. 121, 122.

Quite abundant in Cala. in oak forests.

17. T. Sylvinus, Boisd.

Wings above fuscous; beneath cinereous with a median spot and with two streaks composed of black points; posteriors marked with a rufous

lunule, the anal angle ashy blue.

This species which has the shape of our prunii, is not very rare in woods.

18. Thecla auretorum, Boisd.

Wings above fuscous; posteriors with the anal angle obsoletely lunuled with fulvous; all the wings fuscous beneath; posteriors with a more obscure undulate streak, the anal angle black and the two lunules fulvous.

It has the shape of acaciae of Europe. Very rare. Described from a single ♂ specimen.

19. Thecla Sepium, Boisd.

Wings above rufous brown; beneath fuscous with a narrow, white, undulate-crenulate streak, the anal angle blueish ash, and the lunule black.

Has the shape of our acaciae. Flies in June in brambles.

20. Thecla Grunus, Boisd.

Wings above pale fuscous; disk of the ♀ somewhat fulvous; wings beneath yellowish white, with a darker undulating median streak, blueish on the posteriors.

This species is of the size of our quercus, but differs in appearance from all European species. Quite rare.

21. Thecla Irides, Boisd.

Wings above fuscous, immaculate; those of the ♀ with a somewhat ferruginous disk; anteriors beneath fuscous; posteriors ferruginous, the base widely darker and with a streak composed of black points.

This species has in all respects the shape of Irus of N. Am., but, beside its notably smaller size, it is distinguished from Irus at the first glance by its uninterrupted fringe. It inhabits the Smilax thickets of a large part of central Cala.

22. Thecla Eryphon, Boisd.

Wings above fuscous with a ferruginous disk; beneath chestnut; posteriors fuscous wine-colored, with three highly sinuate stripes which are black, margined with whitish.

This species, like the preceding, is a form peculiar to N. Am. It slightly resembles Niphon of Georgia, figured by Hübner in his Zuträge.

23. T. Dumetorum, Boisd.

Fully resembles our Rubi, and is probably only a local variety of that European species.

24. Polyommatus hypophlaeas, Boisd.

Very near our Phlaeas, but smaller, with the spots more marked and the wings more rounded.

Northern Cala. Found in all the Northern U.S.

25. Polyommatus Hellorides, Boisd.

Wings above obscurely fulvous spotted with black, those of the male with a violet luster; anteriors beneath fulvous dotted with black; posteriors cinereous-fuscous, with ferruginous lunules.

It has the form of our Phlaeas, but it is a little larger, with a fine violet reflection in the ♂.

26. P. Gorgon, Boisd.

Wings of the ♂ above with a brilliant violet luster, margin narrow and black, fringe intersected with white; anteriors with a black subcostal point, posteriors with a fulvous anal fold. Wings of ♀ fuscous spotted with pale fulvous; all the wings in both sexes beneath cinereous, ocellated with black, and with a fulvous marginal band.

This handsome species is of the shape and size of our Heire. The ♂ has a bright violet reflection with a narrow black border and the fringe interrupted with white. The upper side of the ♀ is dull brown spotted with pale fulvous.

Mts. of Cala.

27. P. Xanthoides, Boisd.

Wings above fuscous-cinereous, pale, shining, with a very narrow black margin and a white fringe intersected with black; anteriors with one or two black points; posteriors with a fulvous anal fold, obsolete, dotted with black. All the wings beneath cinereous-rufous, ocellated with black, the anal fold fulvous.

Mts. of Cala. We know only the ♂.

28. P. Arota, Boisd.

Wings of ♂ above fuscous-rufescent, shining, with a narrow fuscous margin, very obsoletely pencilled with black; wings of ♀ above fuscous, the disk fulvous, dotted with black; posteriors in both sexes with short tails and with two black anal dots; anteriors beneath cinereous-fulvous, dotted with black; posteriors cinereous, more obsoletely dotted; ante-marginal stripe whitish.

Shape and size of Alphaeus Vulcanus.

Mts. of Juba in May.

29. Lycaena Amyntula, Boisd.

A local variety of Comyntas of U. S. It differs from Comyntas in the following particulars: — the ♂ has no fulvous lunules on the upperside, and on the lower side only the anal lunule is powdered with gold atoms.

30. Lycaena exilis, Boisd.

Wings of the ♀ above fuscous; anteriors beneath dilutely fuscous streaked with whitish; posteriors beneath whitish streaked with fuscous, with seven ocelli, which are black, shining and powdered with gold.

This pretty little species is one of the smallest with which we are acquainted. It is one half smaller than our Alsus.

3

31. L. Antaegon, Boisd.

Wings of the ♂ above violet blue, shining, with a narrow black margin and a white fringe; posteriors with a fulvous band dotted with black; beneath cinereous ocellated with black; posteriors with a fulvous lunuled band, and black ocelli powdered with gold.

Lycaena Acmon? Westw. & Hewits. G. D. Sep. Pl. 76, fig. 1.

This charming species, which is very distinct from our Argus and Aegon, is quite common around San Francisco.

32. L. Xerxes, Boisd.

Wings of the ♂ above violet blue, of the ♀ fuscous, with a narrow black margin and a white fringe; all the wings beneath cinereous, having all the spots white with but little black.

This species, so remarkable by the under side, is

rare and inhabits the Juba Mountains.

33. L. Saepiolus, Boisd.

Wings above silvery-blue, with a wide black margin and a white fringe; anteriors with a black subcostal spot; ♀ fuscous above with a bluish base; all the wings beneath cinereous with smaller black dots; posteriors with very obsolete lunules, the marginal ones near the anal angle fulvous.

This pretty Lycaena is of the same blue on the upper side as our Damon, with a broad black border, but it has the shape of Donzelii, and bears also a black sub-costal spot. In June, in the mountains.

34. L. Icarioides, Boisd.

Wings of the ♂ somewhat violet blue, of the ♀ fuscous; margin narrow and black, fringe whitish; wings beneath cinereous-whitish; anteriors with black ocellated spots; posteriors with white spots slightly ocellated with black.

It flies in June in the less elevated mountains.

No. 35 follows
No. 36. –

36. ~~L. Pheres, Boisd~~. L. Heteronea, Boisd.

Wings of the ♂ above violet blue, margin narrow and black; fringe whitish, nervures more robust;

beneath whitish-cinereous; anteriors with a median lunule and two rows of black dots; posteriors with whitish cinereous spots in two rows, obsolete, not pupilled. Wings of ♀ above fuscous striped with fulvous, dotted with black.

This remarkable species forms the transition from Lycaena to Polyommatus, for the ♀ has on the upper surface a strong analogy to the ♀ of Heeri and of Chryseis.

35. L. Pheres, Boisd.

Wings of ♂ above violet blue, fringe white; those of ♀ fuscous with a violet base; beneath whitish cinereous; anteriors with black ocellated spots; posteriors with closed white spots.

Around San Francisco.

37. Lycaena enoptes, Boisd.

Wings above violet blue, shining, the black margin wider, fringe intersected with white; beneath whitish cinereous with numerous black ocellated dots; posteriors with a fulvous band and 5 fulvous spots.

It has the shape and size of our Hylas, but is very distinct by its broad black border and its anteriors destitute of a central point on the upper side.

It is found in May on dry hills.

38. L. Pisasus, Boisd.

Wings above violet blue, fringe whitish; those of the ♀ margined with black; beneath whitish-cinereous with numerous black ocellated spots, separated by a whitish band.

A little larger than our Argiolus which it strongly resembles at the first glance.

It flies in woods in Spring and Summer.

39. L. pseudargiolus, Boisd. + Leconte. Icon. N.A. pl. 36.

This does not differ from specimens from other parts of the U.S. It flies quite commonly in thickets in April.

40. L. Antiacis, Boisd.

Wings of ♂ above violet blue, with a narrow black margin and whitish fringe; beneath cinereous with numerous strongly ocellated black spots.

This fine species has the form and size of Alcon.

Environs of San Francisco

Danaidae.

41. Danais Archippus, Fab. etc.

Very common on asclepias in all the warm regions in Cala.

Nymphalidae.

42. Limenitis Eulalia, Doub. + Hew. G. D. L. P. 36, fig.

This beautiful Limenitis seems to form the transition to Heterochroa. It is very near Bredowii of Mexico figured by Hübner.

Its larva lives on willows.

43. Limenitis Lorquinii, Boisd.

Wings fuscous, subdentate, with a common macular white band; anteriors ferruginous at the apex; posteriors with 2 fulvous anal spots; wings beneath fuscous-ferruginous, the spots and macular band being white.

This pretty Limenitis of the Camilla group is not rare in Cala; it appears from May 15th to June 10th.

44. Argynnis Calippe, Boisd.

Wings denticulate, fulvous above spotted with black; posteriors beneath cinereous fulvous; those of the ♀ yellowish, with about 22 spots, the costa and abdominal margin silvery; anteriors beneath reddish fulvous, the marginal lunules and two apical spots being silvery.

This pretty Argynnis, larger than any of the

European species, is not very rare in forests; it flies in June.

45. A. Zerene, Boisd

Wings denticulate, brightly fulvous above, spotted with black; posteriors beneath dilutely ferruginous, more obscure throughout, spots yellowish not silvery.

It is of the size of our Adippus, but its wings are much brighter fulvous. It is not rare in June on the border of woods on mountains of ~~moderate~~ height.

46. A. Astarte, D. + H. G.D. Lep. Plate 22, fig. 5.

M. Lorquin has taken one specimen on ~~the~~ rocky mountains in Northern Cala.

47. Melitaea Chalcedon, Boisd. D. + H. Pl. 23 fig. 1.

When we lent this species to M. Doubleday for his fine work, it was unique, and we were then ignorant of its true habitat. It is now known that it is very common in Cala.

48. M. Editha, Boisd.

Wings above fuscous-black, spotted in rows with fulvous and yellowish; posteriors beneath ~~yellowish~~ fulvous with three yellowish stripes, the anterior ones

irregular and interrupted; the next to the last [illegible]
band pupilled with yellowish.

Quite common in June in mountainous woods.

This pretty Melitaea belongs, like the preceding, to the group of Maturna, Artemis, Cynthia, etc. Perhaps identical with Anicia of Doubleday.

49. M. palla, Boisd.

Wings above varied with black and fulvous, beneath fulvous; posterior with two yellowish basal spots and stripes.

Very common throughout Cala. It has the shape and size of our Athalia, but is of a brighter fulvous.

50. M. pulchella, Boisd.

Papalio Thaws, Drury Ins. I. pl. 21, figs 5, 6.

Well disseminated in central Cala. This species must not be confounded with the Thaws of Cramer which inhabits certain parts of N. Am.

51. Vanessa Progne. Cram. Pl. 5, E. F.

Very rare in Cala.

52. V. Californica, Boisd.

Wings fulvous above with a black limb and without

blue lunules; anteriors with 3 black spots on disk.

This beautiful and interesting Vanessa is nearly of the size of our Xanthomelas. It is quite rare; its larva is not known.

53. V. Antiopa, L.

Quite common on the edge of woods and streams. It also inhabits Mexico and several other parts of N. Am.

54. V. Atalanta, L.

Found in autumn in places where nettles grow. It flies also in many several other parts of the U. S. + Mexico.

55. V. Cardui, L.

Much less common than on the Eastern continent.

56. V. Huntera, Fabr.

More common than Cardui.

57. V. Carye, Hübn. Exot. Samml.

Found all along the Western coast, from Chili to Cala.

58. V. Coenia, Hübn, ibid.

Quite common in Cala.

Satyridae.

59. Satyrus Ariane, Boisd.

Wings black-fuscous; anteriors with 2 large black ocelli on both sides, with a white pupil and a fulvous iris; posteriors beneath with two obscure undulating stripes, and with 6 more or less obsolete ocelli.

It has the shape and size of our Phaedra, and ought to be placed between that species and the Alope of other parts of the U. S.

Common in July in grassy forests.

60. S. Sthenele, Boisd.

Wings dentate, fuscous; anteriors with 2 black ocelli having white pupils; wings beneath cinereous, the ocelli of the anteriors having a fulvous pupil; posteriors with a median angulated band and 2 ocelli.

It has the shape and size of smaller specimens of our Fauna; it flies in July on high grounds; much less common than the preceding.

61. S. Californicus, D. & H. G. D. Lep. Pl. 66, fig. 2.

Shape and size of our Davus; resembles it in the appearance of the underside, but is very different on the upper side which is entirely white as in Phryne &

it flies in cool shady places.

62. *S. galactinus*; Boisd.

Wings whitish on both sides, on the upper unspotted; the anteriors beneath with a ferruginous stripe and a minute apical ocellus; posteriors beneath sprinkled with cinereous on the base, with an obscure angulated stripe, and with 2 or 3 minute ocelli.

It greatly resembles the preceding, except that it is more yellowish white. It inhabits shady spots on mountains. Notwithstanding the contrary opinion of M. Lorquin, it may only be a local variety of *Californicus*, and we should not be much surprised if both were only Am. forms of our *Davus*.

Hesperidae.

63. *Eudamus Bathyllus*, Smith-Abbott. I. pl. 22.
Quite common in woods.

64. *Thanaos Cervantes*, Graslin, Ann. Soc. Ent. de France.
A little larger than specimens from Spain.

65. *T. Brizo*, B. & L. Icon. Pap. & Chen. N. A. Pl. 66.
Very near the preceding.

66. T. Juvenalis, Fab. Ent. Syst.
A little smaller than specimens from Ga.

67. Thanaos tristis, Boisd.
Wings black fuscous; anterior with a median dot and a line of 6 similar dots transverse, whitish; post erior with white fringe.
Size and shape of Juvenalis.

68. Syrichtus Oilus, L.
Hesperia Tartarea, Hübn. Pap. 716, 717.
Common in a great part of Am.

69. S. ruralis, Boisd.
Shape and size of Carthami, with the wings a little blacker; two white spots between the base and the transverse band of the primaries; the two bands of spots on the secondaries better defined and more separated. Under side of the inferior very different from that of our European species.

70. Syrichtus caespitalis, Boisd.
A little larger than our Alveolus, to which it is nearly related. Ground color of the wings a little blacker; two small white spots, instead of a single one,

between the base and the transverse band of the primaries; the inferiors have on their middle a small macular band instead of a single spot as in Alveolus. Under side of secondaries with the median band narrower, longer and serrated; no white spots on the base.

Found in Spring with the preceding.

71. Syrichtus scriptura, Boisd.

Smaller by 1/3 than the smallest specimens of Alveolus. The white spots a little smaller; two small white spots between the base and the transverse band of the superiors, as in Carspitalis; under side of the inferiors whitish, with the white spots but slightly separated, yet distinct.

In dry spots in Spring.

72. Syrichtus cirtetorum, Boisd.

At the first glance the ♂ seems to differ somewhat from those of the genus; the ♀, on the contrary, exactly resembles related species. Shape and size of Arsalte of Merck. Upper side of the wings of the ♂ white slightly tinged with sulphur, having no other markings than a terminal festooned line, forming a row of small triangular spots. Under side of the wings white: that of the inferiors with two brownish bands, one covering the

base and the other at the extremity. Upper side ♂ ♀ blackish br. with 2 white transverse bands commonly all the wings, and the first on the middle, broad, sinuate, irregular; the second much narrower, formed of small sagittate spots, except the spot on the costa of the superiors, which is quadrangular, cut by the nervures & reentrant on the inner side

Found occasionally at the end of Spring in waste places.

73. Hesperia Comma, L.

Similar in all respects to European specimens.

74. H. Sylvanus, Fab., Hübn. &c.

Differs in no respect from the European type.

75. H. Sylvanoides, Boisd.

Shape and size of our Sylvanus. Upper side ♂ ♀ nearly as in that species, except that the third the stigma or black oblique spot, there is a blackish dash, and the 3 or 4 spots on the extremity, a little paler than the ground color, are not present in Sylvanoides. The upper side ♂ ♀ bears on the disk a black triangular spot followed by a small white transparent spot; summits marked by 3 yellow dots. Underside of wings pale yellow. Sometimes a little grayish.

Quite common in May & June on flowers in the edge of woods.

Rhopalocera.

1. Papilio Zolicaon, Boisd.

M. Lorquin has often raised the larva of the Zolicaon which we described 17 years ago. It is not very rare in rural districts on various Umbelliferae, and sometimes on fennel and garden carrots. It is of a handsome green with black rings interrupted and marked with yellow points. The chrysalis resembles that of our Machaon; it opens in May and August.

Machaon, Hospiton, Alexand, Xuthus, Asterias, Sadalus, Zolicaon and perhaps a few others all belong to a small group whose larvae feed exclusively on umbelliferae

2. P. Eurymedon, Boisd.

We had rec'd many ♂ and not a single ♀. A ♀ sent to us by M. Lorquin since the date of our publication does not differ at all from the ♂.

3. Parnassius Clodius, Menetries, E.c.a.m. I. p. 7.

We were wrong in referring this species to Clarius of Altai when we so announced it at Paris to Eversmann just after his last voyage. We have since rec'd specimens of Clarius which have enabled us to establish a comparison, the result of which has convinced us that Menetries was

right in separating them. 1. In specimens from Cala. the ground color is whiter, with the nervures less black and less prominent. 2. The red spots of the inferiors are much smaller, and the spot on the anal angle is in most cases wanting. 3. The under side of the inferiors is marked with red spots on the base, which is never the case in Clarius.

14. Pieris Protodice

Very common in Spring and at the end of July in several parts of Cala.

5. P. Vinonia, Boisd.

Somewhat related to Daplidice.

Wings white, anteriors with a curved stripe near the costa, and an apical band, which are black spotted with white; posteriors with a dentate submarginal line; posteriors beneath with fuscous veins and very narrow reddish marginal lunules.

This beautiful species is of the size and shape of Protodice. The superiors are pure white; they present along the costa a black streak which curves to form a thick transverse dash which limits the discoidal cellule without going beyond it. The summit is bordered by a short black band, quite broad, sinuate on the inner side and

marked by a row of 5 white spots, the lower ones being a little smaller. The inferiors are slightly yellowish white with a blackish submarginal festooned line, the indentations being prolonged on the nervures. The under side of the primaries resembles the upper side; that of the secondaries has fuscous veins, and is marked outside of the festooned line very near the fringe with a row of small reddish lunules or rosettes, very narrow and sometimes slightly effaced. The ♀ resembles the ♂ except that the under side of its inferiors has the veins more obscure and more dilated, and the small red lunules are more "accusées."

This Pierid is very rare. M. Lorquin has found only 5 specimens in the more eastern part of Cala. We still have three of these in our collection. We know not what has become of the two others. We gave one of them to Becker and the other to M. Dejunet; where are they now?

6. P. oleracea, Harris, Boisd. etc.

The small number of specimens taken by M. Lorquin in the Mts. of Cala. are in all respects similar to those of N. Am.; we have never rec'd the ♀ which is probably marked with a black spot.

7. Pieris . Nasturtii, Boisd.

Related to Napi. Wings white, veined with black near the outer edge; anteriors with a black spot; posteriors with a black spot near the outer angle. All veined with black beneath.

This greatly resembles our P. Napi, from which it really differs only in the following particulars: on the underside the ground color is less yellowish with the veins more broadly dilated; the costa of the inferiors is saffron color as in Oleracea; and finally, the 2 black dots of the upper side do not appear beneath.

It is found in open fields at the base of the Juba Mts. We have seen males only. It is possible that the ♀ has, like our Napi, 2 black spots on the superiors. Is this P. nasturtii, an Am. form of our Europ. species, or only a variety of Oleracea? We can not tell. Until the larva is known it will be impossible to decide this question. It is known that P. Brassicae and P. Rapae whose caterpillars are so different, produce butterflies which can hardly be distinguished but by their size.

8. P. Resedae, Boisd.

The size of Napi. All the wings yellowish white; anteriors with a fuscous dot and stripes near the apex; posteriors unspotted, all yellowish beneath.

We know this Species only by a single ♀ specimen

taken by M. Lorquin on the Sacramento. It has the shape and size of our small specimens of Rapae. Its wings are all yellowish white; the superiors have at the summit on the extremity of the nervures a few blackish streaks, and beyond the middle a small spot of the same color. The underside is entirely yellowish white without the least spot, except that the costa of the inferiors is slightly saffron at its base. The ♂ is unknown to us. We hazard the suggestion that this may possibly be the ♀ of the preceding species.

9. Pieris Iberidis, Boisd.

Related to our Rapae. All the wings white on both sides; anteriors in the ♂ with one, in the ♀ with two black-fuscous dots. ♀

It has entirely the form and size of our small cabbage butterfly. Its wings are white; the superiors are marked with a blackish spot, as in Rapae; the inferiors are without spots. Under side entirely white and unspotted. The ♀ resembles the ♂ except that it is marked on the primaries by two blackish spots, as in the ♀ of Rapae. It is found in fields, where, according to M. Lorquin, it is not common.

This species is perhaps only a local variety of that which we have described under the name of crucigerarum.

The ♂ of the latter is entirely unspotted.

10. P. Sisymbrii, Boisd.

Always very rare on the plains of [illegible] of the Pierids of which we have just spoken [illegible], but when the cultures of Europ. Cruciferæ shall be more widely extended in Cala., they will perhaps become be common and, as with us, very noxious to gardens.

11. Anthocharis Ausonides, Boisd.

This appears to us to differ in no respect from the Ausonia. It is quite common during summer in the fields of Cala. M. Lorquin has communicated us the variety [illegible], which should appear in early spring.

12. Anthocharis Angelina, Boisd.

Related to our Cardamines. Wings white; [illegible] with a yellow apical spot margined on the inner side with black; posterior unspotted; [illegible] margined with white and green. ♀ destitute of the yellow spot.

This charming little species, of which M. Lorquin has found only a single pair at Los Angeles, in Southern Cala., has exactly the shape of our Cardamine; but it is one-third smaller. Its wings are white; the superior have toward the summit an auroral spot bordered

within by a black line which separates it from the cellule, and without, toward the fringe, by a blackish gray band divided by white lines. The inferiors are without spots. The under side of the superiors is paler than the upper, and the apical border, beyond the spot, is slightly varied with greenish white. The under side of the secundaries is marbled with white and greenish almost as in cardamine.

The ♀ differs from the ♂ in being destitute of the aureal spot; but in the place which it occupies in the ♂ the ground color is faintly reddish.

13. Colias Eurydice, etc.
♀ Rhodocera Lorquinii, etc.
Colias Wosnesenskii, Men. etc.

Related to Caesonia. Anteriors of ♂ sub-acuminate, fulvous, with a violet luster, with a black spot and very broad black margin; posteriors somewhat golden. Wings of ♀ sulphur; anteriors with a black dot.

As we said in the brief notice which we read in 1854 in the Ent. Soc. of France, this species is the prettiest and most brilliant of all known Colcaids. It has the exact shape of Caesonia of Georgia & Mexico. The superiors have a brilliant fulvous disk with a a beautiful reflection changing from violet to rose, cut

by the nervures. The extremity is broadly covered by a deep black band, sinuate on the inner side and united more or less to the large black subcostal spot. The anal is also broadly blackish. The inferiors are orange yellow, without spots or sometimes with 2 or 3 black streaks toward the outer angle. The under side is of a fine yellow with a slight orange shade, with a silvered spot circled with black on the superiors, and 2 similar spots, one being smaller than the other, circled with ferruginous on the disk of the inferiors.

In Caesonia the ♀ resembles the ♂, but in this species it is so different that we had taken it for a Rhodocera near Rhamni. On the upper side it is entirely sulphur yellow, of a little deeper shade on the interiors; it has no markings except a large black-brown dot at the end of the discoidal cellule of the superiors. On the under side it is marked on each ~~side~~ wing by a small silver dot bordered with ferruginous red.

M. Lorquin in all his excursions in the Mts. has taken only 15 specimens of which only 3 are ♀. The ♂ specimen fig. by Menetries under the barbarous name Nossenskii, was brot from Russian America. The ♀ was unknown to him.

We do not know whether there are any Terias in Cala. Up to the present time M. Lorquin has not found

a single species. It is probable however that a few may exist in the southern part adjoining Sonora.

Lycaenidae.

It is chiefly in this family that the indefatigable entomologist whom we have frequently mentioned has made the most discoveries since the date of our first paper.

Thecla.

We have but little to add to the species before described.

14: T. Spinetorum, Boisd. Hew, etc.

Somewhat related to Pruni. Wings of the ♀ above blue-black, unspotted; all fuscous beneath with a common whitish line, sinuate-angled on the posteriors, and on the outside of this line are fulvous lunules dotted with black.

We know only the ♀; we lent our specimen to M. Hewitson who figured it under the same name in his fine Iconography of the Lycaenidae. It is of the size of our Pruni. The upper side of all the wings is brown-black, with the base of the superiors and the whole disk of the inferiors of a bluish bronze. The

under side is slightly reddish brown with a common transverse line, pure white, regular on the primaries, straight as far as the discoidal cellule on the secondaries, then becoming sinuate and angular to meet the anal angle; this line is followed in the secondaries by reddish lunules more or less indicated, one of which is marked by a thick black dot and bordered on the inner side, like all the others, by a small blackish crescent. The anal palette (?) is also black; between the fringe and the lunules there is also a small whitish line.

M. Lorquin found this single specimen in interior of woods.

(Foot note. — M. Hewitson, as skilful a designer as he is a learned lepidopterist, will immortalize his name in science. A zealous amateur, and possessor of one of the richest collections of diurnal butterflies in the world, he made his entomological debut as collaborator of Edw'd Doubleday (Diurn. Lep. 2 vols. folio), and himself executed all the figures But M. H's remarkable talent was not destined to rest here. In 1856 he undertook, under the title "Exotic Butterflies, etc." the publication in 4to of a splendid work, 3 vols. of which are completed and the 4th well advanced. This magnificent work, which forms an indispensable supplement to the illustrations of Cramer, Drury, Hübner, and all

the modern iconographies, will never be surpassed in accuracy of drawing and truth of coloring. The descriptions which accompany the plates are perhaps a little too brief, but in all cases we prefer them to long descriptions in which we forget the beginning before we reach the end. Fabricius well said: "multa in paucis, much in a few words." Mr. Hewitson has also enriched science by the monographic illustration of the Lycenidae. This work, of which we already possess 4 parts, is in no respect inferior to his Exotic Butterflies. In addition to this (we say it with regret) he has, under pretext of priority, scattered here and there in various memoirs, a few odd monographs, as well as the figures of a few new species, which are doubtless very interesting additions to Knowledge, but which would be better in their place in his large work, which is quite sufficient in itself to exalt the name of its author.)

15. Thecla Bornes, Boisd.

Wings fuscous above; beneath dark cinereous with a median black dot and two rows of black dots; posterions with 2 fulvous lunules separated by a bluish cinereous space.

It has the shape of our Lyncens and a certain

resemblance to Sylvinus which we described in the first part of this work. The upper side of the wings is blackish-brown with a few fulvous lunules, a little indistinct in outline, at the extremity of the superiors in the ♀. These lunules are not present in the male, which is marked by a stigma, as in related species; in both sexes the anal angle of the inferiors is marked by a short fulvous band. The underside is grayish brown with a small black discoidal spot and two sinuous rows of black dots; that of the inferiors has near the anal angle 2 fulvous lunules separated by a space of bluish-ash; the outer and more prominent lunule is marked by a black dot, and is followed toward the costa by other small lunules also fulvous, and more or less indicated, which also often appears near the extremity of the superiors.

This species is not very rare at the end of May in thickets at the foot of mts, especially toward the East.

16. Thecla Grunus, Boisd.

We had only seen this species in a very bad condition; we have since rec'd very perfect specimens of the two sexes, which permit us to correct our description. Above it is reddish fulvous with the extremity broadly blackish, especially in the ♂. The upper side of the wings is entirely ochre-yellow; that of the inferiors has a row

of small blueish crescents bordered with black behind, and preceded by a narrow sinuous whitish line very slightly indicated. Our first description based on an imperfect specimen is very inexact as relates to the under side of the inferiors.

17. T. Nelsoni, Boisd

Wings all fuscous-ferruginous above, the outer portion fuscous; pufescent beneath, with a common sinuate whitish obsolete line; the posteriors with cinereous lunules and black dots.

This new species has the shape of Thrides which we previously described, but it is provided with a small tail, and the anal angle is not notched.

The upper side of the ♂ is reddish-ferruginous with a blackish border. The upper side of the ♀ is brownish, with a few fulvous lunules at the extremity of the wings. The under side of all the wings is reddish, with a common narrow sinuous line, which is whitish bordered with brown on its inner edge. The under side of the inferiors has a slightly sinous tinge and is [illegible] toward the anal region with 3 cinereous gray lunules, the two inner ones being surmounted by a black dot; the small tail is black, as also the border of the anal angle, which is slightly interrupted

with white.

M. Lorquin discovered this species in the large forests of the interior; we have dedicated it to our late co-worker and friend, Nelson, a distinguished physician of Canadian origin, who, during his exile, practised his profession in Cala.

18. Thecla M-album, B. & L. Pl. 26.

M. Lorquin has sent us a defective specimen of this Georgian species, taken by him in the extreme East of Cala. According to Mr. Hewitson it should also be found in Mexico.

Polyommatus.

M. Lorquin has discov'd several new species of this genus, peculiar for the most part to the mts. of Cala.

19. P. Nivalis. Boisd.

Wings above obscurely fulvous with a median black line, those of the ♂ with a violet reflection; posterior with a fulvous marginal band; anterior beneath pale ochraceous dotted with black; posterior pale, with obsolete ferruginous lunules.

Of the shape of our Hieie, but smaller. The upper side of the ♂ is fulvous, with a beautiful

violet reflection; ~~posteriors with a fulvous marginal band; anteriors beneath pale ochraceous dotted with black; posteriors pale, with obsolete ferruginous lunules.~~ Each wing is marked on the middle with a small blackish lunule and with a few very obsolete dots scarcely visible; the inferiors have at the extremity a small indented band, ferruginous-fulvous, bordered behind with black lunules. Under side of the primaries very pale ochre-yellow, dotted with black, as in related species; that of the secondaries is roseate yellow, slightly glaucous at the base, with a few small black dots which are scarcely indicated, and a marginal row of obsolete fulvous lunules. The ♀ is bright fulvous-yellow, dotted with black on the wings as in species of the same group. On the under side it does not differ from the ♂.

This species, tho' very distinct, is near the one which we have described as Helloides. It is found near the snow line.

20. P. Zeroe. Boisd.

Wing. obscurely fuscous, with a violet reflection; the median lunule and margin are fuscous; anteriors dotted with black. Anteriors beneath ochraceous dotted with black; posteriors cinereous with scattered black dots.

It has the shape of our Hiera, but is a little

smaller and is nearly of the size of the preceding species.

The upper side of the ♂ is of a brownish tint washed with fulvous with a violet reflection; and has a small discoidal lunule which is blackish as well as the superiors are marked with a few black inferiors, whose anal angle is slightly salient, extremity the trace of a few fulvous lunules. The side of the superiors is pale ochre-yellow dotted black; that of the inferiors is ashy gray with black most of which are lunules arranged in transverse on the posterior border is a row of sagittate spots which are whitish intersected with black. The ♀ is bright yellow spotted with black like the related

This pretty P. inhabits the high mts of the front of Utah in June & July.

21. P. Xanthoides, Boisd.

When we described this species we said that we knew only the ♂. Since that time we have rec'd from M. Lorquin 2 perfect ♀. They are larger than the ♂, of a clearer brown, with the wings rounded, marked with large black dots. The superiors have between the costa and the median a space more or less extended, and at the anal angle a ferruginous-fulvous fold. The inferiors also have a

large paler spot of dark fulvous, and at the extremity a ferruginous marginal band, crenulated and divided behind by a row of black lunules.

Lycaena.

M. Lorquin in his numerous excursions through Cala. has discovered several new species which we describe below.

22. L. Regia, Boisd.

All the wings shining silver-blue; anteriors with a very small lunule, with 4 black dots arranged in a row; the apex is black; anal angle marked with a fulvous spot; posteriors unspotted; beneath, cinereous dotted with black.

This Lycæna, the prettiest of the genus, is not quite so large as our Alexis. The upper side of its wings is very brilliant silvery blue; the superiors, whose apex is black and fringe intersected with white, have in the discoidal cellule a small black lunule preceded by a curved row of 4 or 5 dots of the same color; near the anal angle they have a large fulvous spot. The inferiors are without spot in the ♂. The fringe is white, joined to a narrow black scalloped line. The under side is dark gray as far as the middle, and pale gray beyond; all the wings are marked with

black dots bordered with white; at the anal angle of the superiors the fulvous spot is a little larger than on the upper side, and is auroral.

The ♀ is a little larger than the ♂; all the wings are crossed by a bent line of large black dots; inferiors there is also toward the anal angle a bilobed fulvous spot and a marginal row of large black dots.

Our unnamed lepidopterist took this species at Los Angeles, but in very small numbers.

23. L. Lupini, Boisd.

Wings above deep violet blue with a fuscous margin; posteriors with fulvous marginal lunules spotted black. Wings below dotted beneath with ashy black; posteriors with fulvous lunules which are golden green on the

Size of our Aegon. Upper side of wings of ♂ of a deep violet blue with the border brownish and of ♀ grayish; that of the inferiors bears a marginal row of dark fulvous lunules each marked by a large black dot; the under side is pale ashy gray with black dots as in the related species; that of the inferiors has the dots very small and a marginal row of fulvous lunules which are bordered in front with black and behind by golden green atoms cut by a black dot. The ♀ [illegible] with the base slightly violet; on the inferiors is

well-marked fulvous marginal band, notched, and supported behind by black lunules. On the under side it is similar to the ♂.

This species is near our Antaegon. M. Lorquin found it in the larva state on lupines in Southern Cala.

24. L. Antaegon, Boisd.

As we supposed, this species is identical with that represented by Westw. & Hew. (Pl. 76, fig. 1) under the name of Acmon, which ought to be rejected, because there is already a Lycaenid long since described and fig'd under that name.

25. L. Nivium, Boisd.

Somewhat related to Aegon: all the wings of the ♂ violet blue with a broad black margin and a white fringe; anteriors with a black lunule. Beneath anteriors dotted with black; posteriors with obsolete fulvescent lunules dotted with black and sprinkled with golden green atoms.

Size of our Aegon; above violet blue with a broad black border and a whitish fringe: on the disk of each wing is a black lunule, more distinct on the superiors. Under side ashy gray with black dots circled with whitish, arranged as in other species of

the same group, larger and blacker on the [illegible] on the secondaries; the latter have in addition a marginal row of dull and obsolete fulvous lunules, followed with black in front, and each marked on the rear by a black dot powdered with a few golden green atoms.

♂ ♀ brownish violet; the inferiors have on the upper side a narrow crenate marginal band of a ferruginous color.

This beautiful Lycaenid hovers over flowers in Oregon, but always in elevated places.

26. L. Philemon, Boisd.

Somewhat related to Argus. Wings of the ♂ shining violet blue with a whitish fringe; beneath white with very small black dots; [illegible] lunules sprinkled with gold atoms.

Exactly the shape of our Argus. The upper side of all the wings is of a handsome violet blue with a white fringe and without spots. Under side white with very small black dots arranged as in the Argus species, and a marginal row of small black lunules three or 4 of which, viz. near the anal angle of the inferiors, are slightly tinged with fulvous and powdered with a few golden green atoms. ♀ entirely brown above,

with a fulvous marginal band as in Argus ♀: this band on the superiors is formed of sagittate spots marked on the rear with a black dot. On the under side it is white of a slightly yellowish cast with the dots larger and a marginal row of fulvous lunules marked with black before & behind on all the wings; the lunules at the anal angle of the inferiors are, as in the ♂, powdered with a few golden green atoms.

Found on flowers in fields of central Cala.

We have rec'd from different sections of Cala. 4 Lycaenas having lunules powdered with golden green on the margin of the inferiors, viz: — Antaegon, Lupini, Nivium and Philemon. All these species are much more readily distinguished one from the other than is our Argus from Aegon.

2j. L. rufescens, Boisd.

Wings above shining blue with a narrow black margin and a white fringe; anteriors with a black lunule; beneath whitish, but blush at the base with black dots. Wings of the ♀ ferruginous rufescent, darker at the base; posteriors with a ferruginous lunulated terminal band.

This Lycaena, differing so much in the 2 sexes, has the shape of our Eros; the ♂ is of the same

shade of blue with a narrow black border and a white fringe, but its superiors bear a small black discoidal lunule. ♂ Under side whitish with black dots arranged as in the other species; that of the inferiors has a marginal row of small black lunules tinged with fulvous. ♀ ♀ red, a little darker at base of wings, with the black lunules very prominent on the superiors, and a row of ferruginous marginal lunules on the inferiors. Beneath yellowish gray with the dots quite large, decided, and circled with whitish; those forming the marginal row on secondaries are sagittate and supported by a small fulvous lunule slightly "accusée", followed by a row of blackish dots.

It inhabits the interior plains in May.

28. L. Erynnis, Boisd.

Above resembles our Icarius: blue with a narrow black margin and whitish cinereous fringe. Beneath dark cinereous with dots of a deeper shade encircled with whitish.

Above resembles Icarius, but very different from it beneath; there the ground color is deep blackish gray, with large black dots surrounded with a whitish circle and arranged as in the other species.

♀ brown above with a small black lunule near the cellule of the super's, + the indication of a ferruginous marginal band at the extremity of the infer's. Beneath like ♂. — Frontiers of Oregon.

29. L. Polyphemus, Boisd

Similar to Acis above; violet blue with narrow black margin + white fringe; beneath pale cinereous with white dots pupilled with black.

Bears a very close resemblance to Acis of Europe, and may possibly be a Calif. modification of that species. Above the black border is narrower, more exact, + the fringe whiter. Beneath the black dots are smaller, more broadly circled with white; on the disk of infer's, in place of the two small discoidal dots is seen a heart-shaped white spot cut transversely by a scarcely visible black line. ♀ brown.

Very near a larger species previously described by us under the name Antiacis, which may possibly be only a large variety of Acis.

30. L. Ervis, Boisd.

Wings above blue with black margin and pale fringe; anter's with a very small black median lunule; wings beneath whitish cinereous, anteriors

dotted with black; posteriors with a white discoidal lunule and dots of the same color slightly pupilled with black.

Almost the size of our Eros and nearly related to a species which we have described and named Pheres. Above nearly of the same blue as Acis; supers have a broad black border with a small black discoidal lunule; infers have the border narrower, interrupted and formed of black dots. Wings beneath ashy white. Supers bear a lunule, then a crooked band of black dots circled with whitish followed by a line of obscure dots. The infers have on the disk a large white lunule, behind which, toward the base, are some white dots faintly pupilled with black. — From Southern Cala. We have recd 3s only.

31. L. Nestos, Boisd.

Wings of ♂ above silvery blue as in Comyndon; anters with black median lunule and a broader black margin; posters dotted with black along outer edge. All the wings beneath whitish dotted with black; posters with a white median spot.

This pretty little Lycaena has the shape and size of our Orbitulus. Its wings are of the same blue as in our Comyndon. The supers have a broad black

border with a black discoidal lunule; between the nervures of the extremity are seen in a certain light stripes of a paler blue. The infer's have the border replaced by dots surmounted by a black crescent; toward the extremity are also seen some small spots of a paler blue than the ground color and a small discoidal spot of the same tint. Wings beneath dirty white, marked by numerous black dots arranged in transverse curved lines; the prominent feature of the infer's is a white spot on the disk followed by a reddish space. — The ♀ differs from the ♂ in being reddish brown above, with the black lunule of the super's more strongly marked. It inhabits the mts near Oregon in July.

32. L. Phileros, Boisd.

Wings of ♂ above violet blue with a white fringe and a narrow black margin; beneath whitish-cinereous; anter's with black ocellated dots: poster's with a white median lunule and smaller white dots pupilled with black. ♀ above fuscous with the base broadly violaceous.

Size of our Icarius, and very near the species described by us + named Icarioides. It is smaller than the latter, and the blue of its wings is more inclined

to violet, almost as in our *Alexis*. Wings beneath ashy white, super's with a discoidal lunule and a transverse curved line formed of black ocellate spots. Infer's with a white, heart shaped discoidal lunule, followed by a row of black ocellate dots and by a marginal series of small black crescents.

♀ brown with the base broadly violet blue, and a small band of fulvous, obsolete marginal lunules as the infer's. Beneath it resembles the ♂.

From the mts of Eastern Cala.

Notwithstanding M. Lorquin's contrary opinion, we regard it rather as a local variety of our *Icarioides* than as a separate species.

33. *L. Rhaea*, Boisd.

Wings above violet blue, margin black, fringe intersected with black; beneath dark cinereous; anter's with black ocellate dots; poster's with a white dentate band and black ocellate dots on the base.

This beautiful *L.* resembles some of our European species. It is a little larger than our *Battus*. Wings above violet blue with a broad blackish border, and white fringe interrupted with black. Beneath dark cinereous; super's marked with a large basal dot,

a central lunule and a sinuous line of black dots well ocellated; outside of these is a sort of whitish band followed by small black crescents. Ground color of infer's still darker, bearing near the base a few black ocellate dots, a whitish spot on the cellule, then a row of black dots followed by a white transverse band which is very distinctly outlined, and has a serrated margin.

♀ differs from ♂ in having on upper side of infer's the trace of 2 or 3 obsolete fulvous lunules.

M. Lorquin captured this charming L. in the extreme south, around Los Angeles.

34. L. Sirasa, Boisd.

Wings above in both sexes black, beneath paler.

Resembles no known species. Nearly the size of our Eumedon. Wings above brown black without any spot; fringe slightly paler. Beneath same color or a little paler, and shows in very fresh specimens a transverse line of indistinct black dots, preceded on the super's by a small obsolete black lunule. ♀ a little darker than ♂.

This odd species, despite its sombre garb, is one of the most interesting recd from Cala. Inhabits the summits of the Eastern Mts.

Erycinidae.

M. Lorquin in his numerous excursions in northern as well as southern Cala. found but a single species belonging to this numerous Am. family. The northern regions of the vast Am. Continent are not the home of the Erycinidae; scarcely more than one or two species have been discovered in other parts of the U.S.; but if M. L'm had carried out his intention to penetrate farther into Sonora, where the types peculiar to the intertropical regions begin to appear, he would doubtless have brought to our knowledge some species related to those which have been rec'd from Mexico.

Chrysobia. Boisd.

We have created this new genus for the unique species which we shall presently describe. According to M. L'm it has the habits of our Lucina, but differs from it in a few particulars; it comes nearer Lemonias in which it has been placed by M. Felder.

Palpi hairy, scaly, the last article nearly naked, slender, evidently longer than the shaft. Antennae with long terminated by a fusiform club which is more slender than in Lucina; discoidal cellule open on all the wings.

This genus differs from the forms of Lemonias of which Epulus is the type, by the last article of the

palpi seems less long and less slender; and by its antennae, the club of which is plainly more inflated.

In repose all the wings are raised.

35. Chrysobia mormonia, Boisd.

Lemonias, Felder.

Size of Lucina; wings above fuscous-black; thickly spotted and dotted with whitish; anter's with a fulvous subcostal ~~dash~~ area. ♀. Wings beneath greenish-ash, spotted with pure white.

This species, of which Becker has received from us several specimens of one of its varieties, has been sent by him to the learned Felder, of Vienna, who has figured it under the same name.

Size of Lucina, same shape & habits. All its wings are black with innumerable small white spots and dots. The ♂ fore's have, below the costa, above the base, a fulvous space divided in the middle by a small white spot, which is round and ocellate. Fringe white broadly intersected with ~~white~~ black, making the wings appear as if dentate; before the fringe is a common row of small white dots

Under side of all the wings gray-brown, a little greenish, with silvery white spots larger than on the upper side, principally on the fore's; the fulvous

space of the super's is brighter.

♀ differs from ♂ only in being a little larger. (Morgan.

M. L'in has sent us as a new species a variety belonging in the Southern Cala; it differs from the form we have just described by its rather smaller size and by its infer's, which are marked behind the discoidal cellule by 2 fulvous spots.

Nymphalidae.

Melitaea.

M. L'in has discov. several novelties in this genus, chiefly in Southern Cala. We now have 10 species to add to the 4 which we mentioned in 1852.

36. M. Nyctis, D. & H. pl. 29, fig. 3.

In shape near the species Ismeria fig. in our Icon. Lep. N. Am. — M. L'in took a few examples in the Juba Mts.

37. M. Tharos, B. & L. pl. 47, figs, 3, 4, 5, ♂.

This little species, very common in many parts of the No. States, is also found in some places in Cala.

38. M. Cocyta. Cram. 101, A. B. etc.

Has been taken at Los Angeles. — Tho' somewhat different as to the under side of its wings, it is perhaps only a variety of the preceding.

39. *M. Callina*. Boisd.

Wings fulvous above, with numerous transverse lines, which, as well as the limb, are fuscous; fringe blackish intersected with whitish; hinder beneath banded with fulvous and whitish.

Size of our *Nemeobius* (?) *Lucina* and resembles in shape our small Europ. species. Wings fulvous with transverse sinuous lines which are quite near together; or they may be said to be brown with interrupted fulvous lines; the border is blackish: fringe blackish intersected with white. Primaries beneath fulvous near the base with a few undulating black lines, and brownish toward the extremity with a row of fulvous spots and a few white ones, one of which is a little larger and somewhat sagittate. Secondaries beneath fulvous marked with whitish bands embroidered with black; band on the extremity formed of somewhat sagittate spots.

♀ resembles ♂ except that beneath, the apex of the wings has more marked and more numerous whitish spots.

Taken in Sonora: we have also rec'd Specimens from Mexico.

40. M. Ejula. Boisd.

Wings somewhat sinuate, fulvous above with sinuate black bands; posteriors with ocellate points near the margin. Anter's beneath fulvous, ochraceous on the apex; poster's ochre-yellow variegated with fuscous, with a bright whitish or ochraceous marginal lunule.

Shape & size of our Parthenia, but its wings appear a little more sinuate; it is fulvous above with sinuate and interrupted black bands. Fringe black intersected with pale yellow. Inferis beneath fulvous with the appearance of darker bands; and the apex broadly washed with ochre-yellow; there are also 2 brown spots, one on the middle of the interior border and the other near the anal angle. Infer's above with a row of black dots parallel to the posterior border, followed by a fine sinuate black line. Infer's beneath ochre-yellow: small sinuate black lines and a few round spots ("plagues.") of reddish brown; they infer's also have as an essential character a silvery white lunule situated on the middle of the exterior border behind the row of black dots, and often also on the disk a small sinuate spot of the same shade.

♀ resembles ♂ except for the color of the infer's which is ochre yellow.

From interior Cala. M. L'in has sent us, as a new species, specimens taken in the Southern part which differ from the typical species in the fact that the ochre yellow of the under surface of the secondaries is replaced by silvery white.

41. M. Orsa.

Wings above fulvous with black sinuate bands and a narrow black margin; posteriors with fewer bands, a line of black dots near the outer edge; all the wings beneath ochre-fulvous with darker obsolete lines.

Size of the preceding, fulvous yellow on upper side with transverse stripes black, sinuate and irregular, less numerous on the infer's which have them only near the base, and which are marked toward the outer border with a row of 4 or 5 very small black dots followed at the very border by 3 or 4 small fulvous lunules. Wings beneath ochre-yellow, a little more fulvous on the super's, with darker waves corresponding to the stripes of the upper side; there is also on the middle of the outer border of the infer's a bright ochre-yellow lunule.

♀ quite different from ♂ above; her super's

instead of being fulvous with black stripes, have in the middle an ochre-yellow band, and below the costa a spot of the same color. Her infer's, beyond the line of small black dots, have also ochre-yellow dots. Beneath she resembles the ♂ except that the infer's are variegated with ochre-yellow.

Common in May in central Cala.

42. M. Thoma, Menet. pl. 11, fig. 3.

This species, which is very common in certain parts of Mex., has been found in Sonora by M. L'n.

43. M. Helcita, Boisd.

Wings above fulvous with fuscous veins and stripes, and a common ochre band; beneath fulvous; ♀ with 2 yellowish basal bands.

Size of our Athalia. Wings above fulvous, broadly shaded with brown toward the base, with black nervures and stripes more or less blended; toward the middle they are crossed by a common band, somewhat macular, and of an ochre-yellow color slightly shaded with fulvous on the super's; the whole base might be described as broadly blackish with a few fulvous spots. The infer's have behind the ochre-yellow band two rows of fulvous spots, and

very near the fringe a marginal line of the same color. The under side of the super's is fulvous with black sinuous stripes and a few small yellow lunules toward the extremity. Infer's beneath fulvous with 3 pale yellow bands, bordered with black; the first, which is interrupted and followed by a pale yellow lunule, is basal; the second is median, and the third is nearly terminal.

♀ a little larger and of a duller color.

Belongs near Palla described by us. Common in southern Cala.

44. M. Pola, Boisd.

Wings above somewhat darker, varied with black & ochraceous; poster's beneath with basal spots & 2 yellowish bands, and a median divided black line.

Size of our Athalia and very near Palla, from which it differs as follows: wings above darker with with the fulvous parts tinged with ochraceous toward the middle; the yellow median band beneath the infer's is cut lengthwise by a narrow black line and not bordered by this line.

We have seen but one specimen taken in Sonora.

45. M. Sonorae. Boisd.

Wings above variegated with fulvous & black; beneath fulvous; poster's with silver spots on the base and 2 silver bands.

Size of our Parthenia. Above it resembles Palla, but beneath it is readily distinguished from it by the bands of the infer's which are silvery as in the Argynnids; the upper side of the infer's ♂ usually has the median fulvous band nearly ochre-yellow. ♀ larger than ♂, of a paler tint, with a median band of ochre-yellow on all the wings. Beneath it resembles ♂. — From Sonora.

46. M. Leanira, Boisd.

Wings above black with macular yellow bands; anter's fulvous near the costal base and near the apex. Anter's beneath fulvous spotted with yellow; poster's yellow with 2 black bands.

This charming species, of the size of our Ithalia, resembles no other. Its wings are black above, with macular bands of sulphur yellow, the last of which forms a row of ante-marginal dots. Super's fulvous ~~near~~ at the base of the costa, and near the apex is a fulvous space. Primaries beneath fulvous with yellow spots, the outermost of which are outlined and intersected by a narrow interrupted line. Secondaries

beneath, yellow with the nervures black and 2 black transverse bands, one of which more or less "marquée" is toward the base, and the other well "accentuée" is situated beyond the middle and divided by a row of yellow dots; fringe black intersec. with yellow.

♀ a little larger than ♂, with the supers more rounded; in other respects there is no diff.

On the lofty summits near the snow-line.

47. M. Anicia. D. & H. pl. 23. fig. 2.
M. Editha, Boisd. Lep. Cala. p. 32, No. 47.

We once said that our Editha was possibly identical with Anicia, only the upper side of which is fig. by Doub. & Hew. The only difference, as we then set forth, is that in Anicia there are 3 fulvous bands at the extremity of the inferis, while in Editha the intermediate row is yellow. Since that time we have rec'd more than 200 examples, and in this ~~200~~ number males have been found with 3 terminal fulvous bands. It follows that the name Editha ought to be dropped.

Several Calif. Melitaeas have a certain mutual resemblance, and are almost as difficult to distinguish from one another as are a few of our Europ. species. By a careful comparison, however, we are

enabled to separate them.

Argynnis.

California appears to be the home of Helicaons and of Argynnids. To the 2 species which we have described we now have a certain number to add.

48. A. Myrina, B. & L. etc.

Quite common "sur le revers de la Juba" (?!).

49. A. Bellona, B. & L. etc.

M. L'n has found 2 specimens but has not given the locality.

50. A. Epithore, Brisd.

Related to Thore; wings rounded, fulvous spotted with black; posters beneath of a purplish color, with a transverse, irregular, pulverulent-yellow band; a row of ocelli near the outer margin.

Size & shape of our Selene; on the under side it resembles our Thore and especially Freija.

The upper side of the wings is fulvous with a great number of black spots some of which are placed without arrangement toward the base, and the rest arranged in 2 parallel rows on the post in

border. Supers beneath fulvous, spotted as above, with the apex and the middle of the posterior border washed with yellow, and with an anteriarginal row of small black ocellate spots. Supers beneath violet purple, having the origin of the costa and an irregular transverse band, yellow powdered with brown. On the middle of the costa is a whitish dentiform spot and an irreg. transverse band of a yellowish plum color. ♀ resembles ♂.

M. L'n found this species among the high eastern mts, where it is very rare and difficult to capture.

51. A. Mormonia

Wings above fulvous spotted with black; posters beneath with silver spots & lunules.

Size of our Euphrosyne. Above fulvous with many black spots, some placed confusedly near the base, the others arranged in 2 rows, the first of which is very sinuate. — Margin blackish, regularly serrate and divided parallel to the fringe by a row of fulvous lunules. Primaries beneath paler than above, with same spots. Secondaries beneath pale fulvous, darker & slightly ferruginous in the middle, with race or silver spots bordered with brown, 6 of which are toward the base, 7 form a row a little

beyond the middle, and the rest form a series of marginal lunules. ♀ a little paler than ♂; the Superi beneath have a marginal row of black dots.

M. L'n found it abundant in summer on the frontiers of Oregon. Like its congeners it loves to sit on thistle flowers.

52. A. Aphrodite, Grd. &c.

Found with the preceding, but it dwells lake.

53. A. Eglais, Boisd.

Wings above fulvous spotted with black; under beneath with many silver or pale spots margined with black.

A little smaller than our Nioba. Above bright fulvous with black spots, irregular toward the base, united in the middle so as to form a transverse zigzag band, followed on the outer side by a row of black dots; along the exterior border there is, as in related species, a black band, dentate on the inner side, divided by a row of fulvous lunules, and a small marginal fulvous line. Superi beneath paler than above with a row of small silver lunules at the extremity, chiefly toward the apex. Inferi beneath ferruginous, having spots which are either silver or

yellow or whitish, bordered with black in front; 10 of these spots are scattered toward the base, 7 united in a transverse band, and 3 others form marginal lunules. ♀ a little larger than ♂ and duller fulvous.

This species varies considerably. In some specimens all the spots are nacre, in others they have only a nacre reflection, in others they are yellowish white, except the marginal lunules which are always nacre. In fine, we have a variety of which we had formed a species to be named Irene, in which all the marginal lunules are yellowish white; but after comparing more than a hundred examples we have found all the transitions, and we are now convinced that they cannot be separated.

Common in uncultivated grounds and on borders of forests in central Cala.

54. A. Juba. Boisd.

Wings above brightly fulvous spotted with black: ♀ yellowish beneath, darker on the middle, with about 23 spots, which, together with the costa and abdominal margin, are silvery.

This species has so close a connection with the one which we have described under the name of Califfe, that it is possibly only a local variety of the same.

Its wings are bright fulvous above ♂ in both sexes while in Calippe ♂ (of which we have seen many) they are pale yellowish fulvous. In both sexes there is always near the fringe and behind the row of lunules a small interrupted fulvous line. The under side presents no notable differences.

Mr. L'n, who has taken a many specimens in the elevated prairies of Juba, considers it a distinct species

55. A. Hydaspe, Boisd.

Wings above bright fulvous spotted with black; infer's beneath dilutely ferruginous, with yellow spots marginied with black.

This Argynnis, of which we have seen many examples, may possibly be a local variety of Zerene. It is a little smaller, wings more rounded at apex; infer's beneath less vinous, the yellow spots neater, clearer and better indicated. Besides the marginal lunules of ♀ are always yellow, and never nacre as in Zerene ♀.

From So. Cala. where it flies with Cybele.

56. A. Cybele.

Found occasionally in the South, rare in other parts of Cala. M. L'n has found an aberrant ♀

in which all the fulvous is replaced by white.

57. A. Adiante, Boisd.

Wings above bright fulvous spotted with black; infer's beneath ochre-glaucous with 2 fuscous streaks, and obsolete pale lutescent spots.

A quite decided species discov. by M. Lin in E. Cala. Wings above bright fulvous with black spots arranged nearly as in related species. Super's. beneath fulvous from the base as far as the middle, with the apex broadly yellowish glaucous, marked with a few small paler spots; otherwise as above. Infer's beneath yellowish glaucous, crossed toward the middle by a zigzag brown line; between the base and this line the ground color is a little more intense, marked in 5 or 6 pale unequal spots; bordering this same line and behind it is a row of similar very obsolete spots; at the extremity there is also a row of lunules, not at all decided but distinct in a certain light. ♀ resembles ♂.

This handsome Arg. was taken in abundance by M. Lin on the border of woods in E. Cala, at the time of his last journey of exploration in that vast territory.

Vanessa.

58. V. Milberti. B. & L.

M. Lin found this species in very small numbers in various localities; he has sent but 4 or 5 specimens.

59. V. Progne, B. & L.

We have rec'd but one specimen, taken at [illegible].

Satyridae.

Chionobas.

60. C. Californica, Boisd.

Some what related to Aello. Wings above uniform fulvous, costa & margin fuscous; anteriors with 2 ocelli: posteriors with one; beneath, posteriors whitish ash with 2 black sinuate bands.

This rare Chionobas, the handsomest and largest of the genus, is entirely distinct from all known species. Its wings are slightly dentate, of a brighter fulvous than in Aello, with the border and costa of the superiors of a grayish brown; the superiors are marked by 2 black eyes, without an iris, pupilled with white, one toward the apex and the other near the internal angle. The inferiors have but one eye, which is smaller and placed toward the

internal angle. The under side of the super's differs from the upper in having the costa and border "piquées" (?) with ashy white; that of the infer's is whitish ash, powdered with small brown atoms, with 2 zigzag black transverse bands, one of which is situated at some distance from the base, and the other a little beyond the middle; the border is shaded brown, and the eye of the upper side is indicated only by a small white dot. The ♂ differs from the ♀ only in having on the super's an oblique stigma of a grayish brown color.

This remarkable species is found in high mts. at the snow line, where it is very rare and difficult to capture. We have rec'd two pairs which we owe to the indefatigable zeal and to the favor of M. Lorquin. We have parted with one ♂ to our esteemed friend Mr. Scudder, a distinguished U.S. entomologist.

Satyrus.

61. S. Ariane, Boisd.

M. L'n has sent us as a new species a variety smaller than the type which we have described. It differs from ordinary specimens only by its ocelli having the iris very undecided in the ♂,

and by the markings beneath, which are less exact.
Found in pebbly spots in the mts.

62. S. Octus. Boisd

Wings above fuscous; antes with a single ocellus; antes beneath with 2 pupilled ocelli having a fulvous iris; poster's beneath variegated with ash, and having 2 very small anal ocelli.

Much smaller than Fauna but similar in shape. Above brown, with a small black eye without a pupil near the ~~base~~ apex of the super's. Super's beneath a little paler with 2 black eyes pupilled with white and with a fulvous iris; infer's beneath a little darker, with very faint grayish waves and 2 small transverse zigzag blackish lines; toward the anal angle are 2 small black eyes pupilled with white on a narrow blackish band. ♀ differs from ♂ by having sometimes on the upper side 2 eyes with the iris slightly fulvous. The ♂ has as a characteristic mark on its primaries an oblique stigma darker than the ground color. Found in pebbly spots on mts in July.

Hesperidae

We have no species to add to those formerly described. H. Lorquinii, knowing that these butterflies are in but little demand by amateurs, has taken no pains to discover new ones.

Thecla Sheridanii Edw.

Size and form of T. dumetorum Boisd. to which it is allied. Expanse of wings 1.10 inch. Upperside uniform pale black; underside of both wings green, except along hind margin of primaries, where color is whitish brown; across both wings passes an extra discal narrow white band, ruscular on primaries, but continuous on secondaries and straight from costal margin to minor margin a little above anal angle. Big Horn July 77. Montana

Kricogonia fantasia.

♀ Wings above, greenish-white; front wings with the basal costa dusky sulphur yellow; a pale brown marginal band beginning broad on costa, and tapering to near the anal angle; hind wings, ~~below, with the greater~~ tinted with pale sulphur; front wings, below, with the greater part of the discoidal cell and basal half of the costal ~~area~~ area and apex tapering to near the anal angle, tinted pale sulphur; hind wings as above, but brighter towards the base; body creamy white; anus brownish. Ex. 2 in., 4 lines to 1 in., 8 lines. Hab. Nicaragua. Most nearly allied to K. lysides but at once distinguishable by the marginal band and differently

colored bases of wings.

Lycaena batloides Behr. Wings of male
above blue, broadly mar-
gined with black, fringes check-
ered; of the ♀ very dark brown,
posterior provided with several
yellow submarginal lunules, frin-
ges of all wings checkered.
Wings of both sexes below whitish,
anterior with two basal dots in
a transverse black band hardly
bent backward and confluent
with the discoidal line, a series
of ordinary quadrangular black
dots, a double submarginal
series and no black margin.
Posterior wings with three basal
black dots and a fulvous band
which reaches to an internal series
of submarginal dots but not
to the external series of dots nor
to the anterior ones. (Translated)
This species was collected at an
elevation of 11,000 ft on the head-
waters of the San Joaquin River, by

the Geological Survey. It represents
the European L. Bathus"